

AN 144:468319 CASREACT  
 TI Chiral compound suitable as a catalyst for asymmetric transfer  
 hydrogenation  
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 PA DSM Ip Assets B.V., Neth.  
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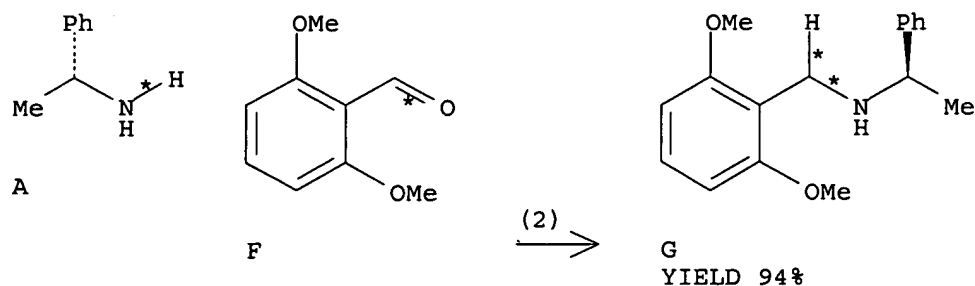
PRAI EP 2004-78106 20041111

OS MARPAT 144:468319

AB The invention relates to an enantiomerically enriched chiral compound comprising a transition metal M, which comprises four, five or six coordinating groups of which at least one pair is linked together to form a bidentate ligand, in which M is directly bound via one single  $\sigma$ -bond to a carbon atom of an optionally substituted and/or optionally fused (hetero)aromatic ring of said bidentate ligand and in which M is directly bound to a nitrogen atom of a primary or secondary amino group of said bidentate ligand, thereby forming a metalacycle between said bidentate ligand and the metal M, said metal M being selected from the metals of groups 8 and 9 of the Periodic Table of the Elements, in particular iron, ruthenium, osmium, cobalt, rhodium, or iridium. The chiral compound can be used as a catalyst, preferably in an asym. transfer hydrogenation process. The invention further relates to a process for an asym. transfer hydrogenation of a prochiral compound in the presence of a hydrogen donor and the chiral compound of the invention comprising a transition metal chosen from the metals of groups 8, 9 and 10 of the Periodic Table, in particular iron, ruthenium, osmium, cobalt, rhodium, iridium, nickel, palladium or platinum as the catalyst. Thus, reaction of  $[\text{Ru}(\eta^6\text{-C}_6\text{H}_6)\text{Cl}_2]_2$  with (S)-1-aminotetralin in the presence of NaOH/KPF<sub>6</sub> in MeCN for 72 h at 20° gave title catalyst (S)- $[\text{Ru}(\eta^6\text{-C}_6\text{H}_6)\{3-(\text{NH}_2\kappa\text{N})\text{-C}_{10}\text{H}_{10}\text{-}\kappa\text{Cl}\}(\text{NCMe})(\text{KPF}_6)]$  which was used for asym. transfer hydrogenation of acetophenone.

RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

RX(2) OF 10 A + F ==> G



RX(2) RCT A 3886-69-9, F 3392-97-0

STAGE(1)

SOL 64-17-5 EtOH  
CON 20 minutes, room temperature

STAGE(2)

RGT D 16940-66-2 NaBH<sub>4</sub>  
SOL 64-17-5 EtOH  
CON overnight, 0 deg C -> room temperature

PRO G 886575-16-2

AB The invention relates to an enantiomerically enriched chiral compound comprising a transition metal M, which comprises four, five or six coordinating groups of which at least one pair is linked together to form a bidentate ligand, in which M is directly bound via one single  $\sigma$ -bond to a carbon atom of an optionally substituted and/or optionally fused (hetero)aromatic ring of said bidentate ligand and in which M is directly bound to a nitrogen atom of a primary or secondary amino group of said bidentate ligand, thereby forming a metalacycle between said bidentate ligand and the metal M, said metal M being selected from the metals of groups 8 and 9 of the Periodic Table of the Elements, in particular iron, ruthenium, osmium, cobalt, rhodium, or iridium. The chiral compound can be used as a catalyst, preferably in an asym. transfer hydrogenation process. The invention further relates to a process for an asym. transfer hydrogenation of a prochiral compound in the presence of a hydrogen donor and the chiral compound of the invention comprising a transition metal chosen from the metals of groups 8, 9 and 10 of the Periodic Table, in particular iron, ruthenium, osmium, cobalt, rhodium, iridium, nickel, palladium or platinum as the catalyst. Thus, reaction of [Ru( $\eta^6$ -C<sub>6</sub>H<sub>6</sub>)Cl<sub>2</sub>]<sub>2</sub> with (S)-1-aminotetralin in the presence of NaOH/KPF<sub>6</sub> in MeCN for 72 h at 20° gave title catalyst (S)-[Ru( $\eta^6$ -C<sub>6</sub>H<sub>6</sub>){3-(NH<sub>2</sub> $\kappa$ N)-C<sub>10</sub>H<sub>10</sub>- $\kappa$ Cl}(NCMe)(KPF<sub>6</sub>)] which was used for asym. transfer hydrogenation of acetophenone.